

**Engaging Pre-service Teachers and  
Elementary School Students in the Forestry  
Reclamation Approach Through  
Earthworm Inoculation**

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# Introduction

- **Partners**
- **Forestry Reclamation Approach**
- **Earthworms and Soil Quality**
- **Teacher Education and Service Learning**
- **Community Involvement**

## Partners in this project:

- **Appalachian Regional Reforestation Initiative (ARRI)**
- **Appalachian Coal Country Watershed Team (ACCWT)**
- **Indiana University of Pennsylvania (IUP) pre-service elementary teachers**
- **Local teachers and students**

# ARRI/ACCWT

- **ARRI is a citizen/industry/government program formed to restore forests on post-bond release mine sites in Appalachia**
- **ACCWT is a partnership between OSM and AmeriCorps\*VISTA to help target problems associated with coal mining in Appalachian watersheds**

# Indiana University of PA

- **Pre-service elementary teachers (students in the teacher education program who plan to be elementary teachers) completing their life science course, SCI 104 Fundamentals of Environmental Biology**

## Local teachers and students

- **Teachers and students in areas that are served by ARRI/ACCWT who want to participate in local reclamation efforts to increase awareness and encourage education-related activities**

# Forestry Reclamation Approach

- **Suitable rooting medium for trees**
- **Loosely graded topsoil**
- **Compatible ground covers**
- **Early succession trees and commercially valuable species**
- **Proper tree planting techniques**



# FRA in action



# Earthworms and Soil Quality

- Evidence supports the value of earthworms in improving soil quality in post-mining soils (Butt, 1999; Ma et al., 2003; Vimmerstedt & Finney, 1972)



# Teacher Education and Service Learning

- Service learning incorporates service to the community with classroom academics
- This project included research, lesson plan design, science content, and peer evaluation
- Lesson plans focused on inquiry and the 5-E model (Trowbridge & Bybee, 1990)

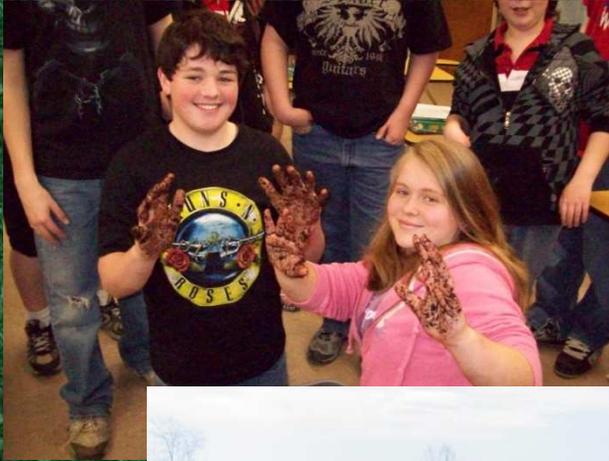
# 5-E Lesson Plan Model

- **Designed to encourage inquiry and student-centered learning**
- **5 sections: Engage, Explore, Explain, Elaborate, and Evaluate**
- **Leads to improved critical thinking skills and the ability to apply learning to new situations**

# Community Involvement

- Students and teachers in several locations, including Haysi, VA and Carcassone, KY participated in raising and releasing earthworms at FRA sites last year.





# Great publicity for the reforestation project in local newspapers

PAGE 8B **InTouch** The Dicke  
with Dickenson County family, friends & neighbors WEDNESD

Biology professor Kristine Hoffmann (center) of The University of Virginia's College at Wise speaks to Longs Fork Elementary School seventh grade students about local ecology during a recent earthworm planting project at an abandoned mine site at Splashdam. Hoffmann brought a collection of tadpoles and salamander egg masses in glass jars for the students to observe.



## Students, worms nurture seedlings

BY CHRIS EBERLY  
\* FRIENDS OF THE RUSSELL FORK

Seventh-grade students from three county elementary schools and more than 1,000 of their small friends took a field trip to Splashdam on April 24 to play a part in nurturing two acres of hardwood seedlings that were planted on an abandoned strip mine there last month.

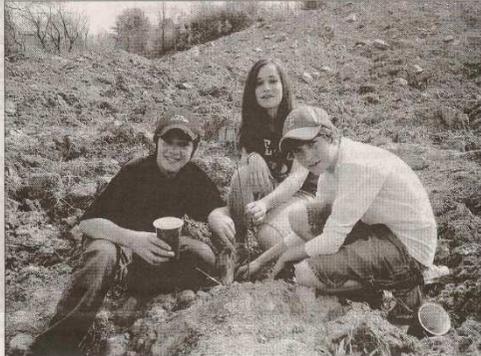
A total of 110 students from Longs Fork, Erinton and Sandlick Elementary Schools spent the day on the surface mine site learning about topics in ecology, geology and forestry, and taking the final step in a science experiment that began in March.

The students brought with them bins full of earthworms that they had been raising in their classrooms for the last four to six weeks. With their ability to produce excellent soil for anything from tree seedlings to vegetable gardens, the earthworms will benefit the trees if they can make a home around their root systems. It was the students' task to put the worms in a position to do that.

Each student chose one of the seedlings on the site and carefully dug down until the topmost roots were exposed. Then they placed the contents of a 20-ounce cup full of soil and worms into the hole, and finally covered it over with more soil from their bins to protect it. The worms are expected to burrow down to the root mass.

"I liked putting the worms around the trees because hopefully it will help them grow and help put back the forest the way it was," said Damon Vance, a seventh-grader at Sandlick.

Apart from releasing the earthworms, the students attended talks, walking tours and exhibits at four sta-



Dakota Davis (left), Christy Sperow and Jonathan Shields of Erinton Elementary School bury earthworms around the roots of a hardwood seedling.

and salamander egg masses in glass jars for the students to observe.

Claire Donley, the OSM/VISTA volunteer for the

PLEASE SEE EARTHWORMS, PAGE 16B

**As one student noted, “It would be such a great thing to show grandkids and to know that we helped with it, helped bring it back.”**



# References

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**Questions?**

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